

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

EIGHT KHZ, LLC,

Plaintiff,

v.

**META PLATFORMS, INC.; META
PLATFORMS TECHNOLOGIES, LLC;
TWISTED PIXEL GAMES, LLC,**

Defendants.

Civil Action No. 6:22-cv-00575-ADA-DTG

JURY TRIAL DEMANDED

JOINT CLAIM CONSTRUCTION STATEMENT

Pursuant to this Court’s Scheduling Order (Dkt. 117) dated June 20, 2023, Plaintiff Eight kHz, LLC (“Plaintiff” or “8k”) and Defendants Meta Platforms, Inc., Meta Platforms Technologies, LLC, and Twisted Pixel Games, LLC (collectively “Defendants” or “Meta”) (together, Plaintiff and Defendants are referred to as the “Parties”) hereby respectfully submit this Joint Claim Construction Statement. The Joint Claim Construction Statement identifies agreed and disputed constructions for each of the claim terms at issue concerning U.S. Patent Nos. 9,226,090 (the “’090 Patent”), 9,282,196 (the “’196 Patent”), 9,674,628 (the “’628 Patent”), 10,368,179 (the “’179 Patent”), 10,448,184 (the “’184 Patent”), 10,798,509 (the “’509 Patent”), 10,917,737 (the “’737 Patent”), 11,172,316 (the “’316 Patent”), and 11,290,836 (the “’836 Patent”) (all together, the “Patents-in-Suit”).

I. AGREED TERMS

Claim Term	Patent Nos.	Agreed Construction
“sound localization point” / “SLP”	’090 Pat., cls. 8, 14, 15; ’196 Pat., cls. 1, 4, 15, 19; ’628 Pat., cls. 9, 12; ’509 Pat., cls. 9, 10, 17; ’737 Pat., cls. 1, 14, 15, 16; ’316 Pat., cls. 9, 10, 14; ’836 Pat., cls. 8, 10.	Plain and ordinary meaning, but if the Court prefers to construe this term, then “location where a listener localizes sound”
“near-field distance”	’836 Pat., cls. 8, 10.	“distance less than one meter”
“far-field distance”	’836 Pat., cls. 8, 10.	“distance greater than or equal to one meter”
“a binaural voice”	’090 Pat., cl. 15.	“vocal sound waves (including representations of same) as they would be received by each of the left and right ears of a listener, which a listener can localize”

II. DISPUTED TERMS

Claim Term	Plaintiff’s Proposed Construction	Defendants’ Proposed Construction	Party Proposing Term
“electronic call” ’090 Pat., cls. 8, 14.	Ordinary and customary meaning, but if the Court requires a construction “voice communication over an electronic network between at least two parties”	Plain and ordinary meaning, which is “call between at least two parties”	Plaintiff
“electronic phone call” ’090 Pat., cl. 15.	Ordinary and customary meaning, but if the Court requires a construction “voice communication over an electronic	Plain and ordinary meaning, which is “call between at least two parties using at least one phone”	Plaintiff

	network between at least two parties”		
“telephone call” ’628 Pat., cls. 9, 12, 16.	Ordinary and customary meaning, but if the Court requires a construction “voice communication over an electronic network between at least two parties”	Plain and ordinary meaning, which is “call between at least two parties using at least one phone”	Plaintiff
“away from and proximate to” ’090 Pat., cls. 8, 14, 15; ’196 Pat., cls. 1, 4, 15, 19.	Ordinary and customary meaning, but if the Court requires a construction “a distance from”	Indefinite.	Defendants
“head related transfer functions” / “HRTFs” ’628 Pat., cls. 9, 12, 16; ’737 Pat., cls. 1, 14, 15, 16; ’179 Pat., cl. 14; ’184 Pat., cl. 14; ’836 Pat., cls. 8, 10.	Ordinary and customary meaning, but if the Court requires a construction “functions that describe transformation of sound that modify the spectrum and time of arrival at a listener’s ears”	Plain and ordinary meaning, which is “functions of frequency and three spatial variables—distance, azimuth angle, and elevation angle—that represent how sound reaches the ears of a listener”	Plaintiff
“digital signal processor” / “DSP” ’836 Pat., cls. 8, 10; ’179 Pat., cl. 14; ’184 Pat., cl. 14.	Ordinary and customary meaning, but if the Court requires a construction “specialized processor or software optimized for transforming an input signal at its output”	“specialized processor with better power performance and efficiency than a general purpose microprocessor”	Defendants

<p>“wearable electronic device” / “WED”</p> <p>’090 Pat., cl. 15; ’196 Pat., cls. 15, 19; ’628 Pat., cls. 9, 12, 16; ’179 Pat., cl. 14; ’184 Pat., cl. 14; ’509 Pat., cls. 9, 10, 17; ’737 Pat., cls. 1, 14, 15, 16; ’316 Pat., cls. 9, 10, 14.</p>	<p>Ordinary and customary meaning, but if the Court requires a construction “portable wireless electronic device that is worn on or attached to a person”</p>	<p>No construction is necessary.</p>	<p>Plaintiff</p>
<p>“handheld portable electronic device” / “HPED”</p> <p>’196 Pat., cls. 1, 4; ’737 Pat., cl. 1.</p>	<p>Ordinary and customary meaning, but if the Court requires a construction “portable wireless electronic device that is held in the hand of a person”</p>	<p>No construction is necessary.</p>	<p>Plaintiff</p>
<p>“a processor that executes the instructions to adjust the binaural voice of the second person during the electronic phone call in order to position a sound localization point of the binaural voice to a location that is away from and proximate to the first person, wherein the sound localization point represents an origin of the binaural voice of the second person to the first person”</p> <p>’090 Pat., cl. 15.</p>	<p>§112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a processor, such as, a central processing unit, CPU, microprocessor, application-specific integrated circuit (ASIC), that communicates with memory.</p>	<p>Means-plus-function term governed by §112(f).</p> <p>Function: “adjust the binaural voice of the second person during the electronic phone call in order to position a sound localization point of the binaural voice to a location that is away from and proximate to the first person, wherein the sound localization point represents an origin of the binaural voice of the second person to the first person”</p> <p>Structure: Inadequate structure for</p>	<p>Defendants</p>

	Function: “executes the instructions to adjust the binaural voice”	performance of the claimed function and thus this term is indefinite.	
<p>“a processor that executes the instructions to receive a command from the person to move the SLP of the voice of the computer program from the first location in empty space to a second location in empty space that is proximate to the first location and away from and proximate to the person, move the SLP of the voice of the computer program in response to the command from the first location in empty space to the second location in empty space, and provide binaural sound to the person through the wearable electronic device during the voice exchange between the computer program and the person such that an origin of the voice of the computer program occurs at the SLP at the second location in empty space that is proximate to the first location and away from and proximate to the person”</p> <p>’196 Pat., cl. 15.</p>	<p>§112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a processor, such as, a central processing unit, CPU, microprocessor, application-specific integrated circuit (ASIC), that communicates with memory.</p> <p>Function: executes the instructions to receive a command from the person to move the SLP</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Functions: “receive a command from the person to move the SLP of the voice of the computer program from the first location in empty space to a second location in empty space that is proximate to the first location and away from and proximate to the person, move the SLP of the voice of the computer program in response to the command from the first location in empty space to the second location in empty space, and provide binaural sound to the person through the wearable electronic device during the voice exchange between the computer program and the person such that an origin of the voice of the computer program occurs at the SLP at the second location in empty space that is proximate to the first location and away from and proximate to the person”</p>	Defendants

		Structure: Inadequate structure for performance of the claimed functions and thus this term is indefinite.	
<p>“The electronic system of claim 15, wherein the processor further executes the instructions to change attenuation and reverberation of the binaural sound in order to add artificial audial cues of virtual objects near the person, wherein the virtual objects do not actually exist near the person but are perceived to exist by the person from the artificial audial cues”</p> <p>’196 Pat., cl. 19.</p>	<p>§112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a processor, such as, a central processing unit, CPU, microprocessor, application-specific integrated circuit (ASIC), that communicates with memory.</p> <p>Function: “executes the instructions to change attenuation and reverberation of the binaural sound”</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Function: “change attenuation and reverberation of the binaural sound in order to add artificial audial cues of virtual objects near the person, wherein the virtual objects do not actually exist near the person but are perceived to exist by the person from the artificial audial cues”</p> <p>Structure: Inadequate structure for performance of the claimed function and thus this term is indefinite.</p>	Defendants
<p>“processing, during the telephone call and with a processor, a voice of the calling party with head related transfer functions (HRTFs) so the voice of the calling party localizes to the called party as binaural sound at a sound</p>	<p>§112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Function: “processing a voice of the calling party with head related transfer functions (HRTFs) so the voice</p>	Defendants

<p>localization point (SLP) that is one meter to two meters away from the called party”</p> <p>’628 Pat., cls. 9, 12.</p>	<p>provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a processor, such as, a central processing unit, CPU, microprocessor, application-specific integrated circuit (ASIC), that communicates with memory.</p> <p>Function: processes a voice of the calling party with HRTFs as binaural sound</p>	<p>of the calling party localizes to the called party as binaural sound at a sound localization point (SLP) that is one meter to two meters away from the called party”</p> <p>Structure: Inadequate structure for performance of the claimed function and thus this term is indefinite.</p>	
<p>“A non-transitory computer readable storage medium storing instructions that one or more electronic devices in an electronic system execute as a method during a telephone call between a calling party and a called party, the method comprising: ... processing, during the telephone call, a voice of the calling party with head related transfer functions (HRTFs) so the voice of the calling party localizes to the called party as binaural sound at the image of the calling party that appears at least one meter away from the head of the called party; ... changing, during the telephone call and in</p>	<p>§ 112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a non-transitory computer readable storage medium, where these storage media include different forms of memory including semiconductor memory devices Such as DRAM, or</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Functions: “processing, during the telephone call, a voice of the calling party with head related transfer functions (HRTFs) so the voice of the calling party localizes to the called party as binaural sound at the image of the calling party that appears at least one meter away from the head of the called party ... changing, during the telephone call and in response to the head movements of the called party, the HRTFs processing the</p>	<p>Defendants</p>

<p>response to the head movements of the called party, the HRTFs processing the voice of the calling party so the voice of the calling party continues to localize to the image of the calling party that appears at least one meter away from the head of the called party as the head of the called party moves and changes head orientations.”</p> <p>’628 Pat., cl. 16.</p>	<p>SRAM, Erasable and Programmable Read Only Memories (EPROMs), Electrically Erasable and Programmable Read-Only Memories (EEPROMs) and flash memories; magnetic disks such as fixed, floppy and removable disks; other magnetic media including tape; optical media such as Compact Disks (CDs) or Digital Versatile Disks (DVDs).</p> <p>Function: processes a voice of the calling party with HRTFs as binaural sound”/”changing, in response to head movements, the HRTFs</p>	<p>voice of the calling party so the voice of the calling party continues to localize to the image of the calling party that appears at least one meter away from the head of the called party as the head of the called party moves and changes head orientations”</p> <p>Structure: Inadequate structure for performance of the claimed functions and thus this term is indefinite.</p>	
<p>“processing, by a processor, sound with head-related transfer functions (HRTFs) to generate the binaural sound that externally localizes to the user at the location of the SLP in empty space in the zone above the physical floor” / “a processor that processes sound with head-related transfer functions (HRTFs) so sound externally localizes</p>	<p>§112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Function: “processing ... sound with head-related transfer functions (HRTFs) to generate the binaural sound that externally localizes to the user at the location of the SLP in empty space in the zone above the physical floor” /</p>	<p>Defendants</p>

<p>as binaural sound to the user at the SLP in empty space inside the 3D zone defined by movement of the PED”</p> <p>’737 Pat., cls. 1, 14, 15, 16.</p>	<p>Structure: a processor, such as, a central processing unit, CPU, microprocessor, microcontrollers, field programmable gate arrays (FPGA), application-specific integrated circuits (ASIC), that communicates with DSP and memory.</p> <p>Function: processes a sound with HRTFs to generate a binaural sound” / “processes a sound with HRTFs to externally localize it as a binaural sound</p>	<p>“processes sound with head-related transfer functions (HRTFs) so sound externally localizes as binaural sound to the user at the SLP in empty space inside the 3D zone defined by movement of the PED”</p> <p>Structure: Inadequate structure for performance of the claimed function and thus this term is indefinite.</p>	
<p>“one or more processors that process sound for the image to generate binaural sound that has a sound localization point (SLP) with a coordinate location that occurs at a far-field distance located behind the image and along a line-of-sight from the user to the image while the display displays the image to the user at the near-field distance”</p> <p>’836 Pat., cls. 8, 10.</p>	<p>§112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: one or more processors, such as, a central processing unit, CPU, microprocessor, microcontrollers, field programmable</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Function: “process sound for the image to generate binaural sound that has a sound localization point (SLP) with a coordinate location that occurs at a far-field distance located behind the image and along a line-of-sight from the user to the image while the display displays the image to the user at the near-field distance”</p> <p>Structure: Inadequate structure for</p>	Defendants

	<p>gate arrays (FPGA), application-specific integrated circuits (ASIC), and wherein the one or more processors include a digital signal processor (DSP).</p> <p>Function: processes a sound to generate a binaural sound</p>	<p>performance of the claimed function and thus this term is indefinite.</p>	
<p>“a digital signal processor (DSP) that processes the sound for the image with far-field head-related transfer functions (HRTFs) while the electronic device is located at the near-field distance from the head of the user”</p> <p>’836 Pat., cls. 8, 10.</p>	<p>§ 112(f) is inapplicable. Ordinary and customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a digital signal processor (DSP), which is explained as a hardware architecture optimized for convolving sound, that communicates with the processing unit and memory.</p> <p>Function: processes a sound with far-field HRTFs</p>	<p>Means-plus-function term governed by § 112(f).</p> <p>Function: “processes the sound for the image with far-field head-related transfer functions (HRTFs) while the electronic device is located at the near-field distance from the head of the user”</p> <p>Structure: Inadequate structure for performance of the claimed function and thus this term is indefinite.</p>	Defendants
<p>“processing, by a digital signal processor (DSP), sound with the HRTFs to</p>	<p>§ 112(f) is inapplicable. Ordinary and</p>	<p>Means-plus-function term governed by § 112(f).</p>	Defendants

<p>generate binaural sound that externally localizes to the user at the virtual image in the environment” / “processing, by a digital signal processor (DSP), sound with the HRTFs to generate binaural sound that externally localizes in empty space from the virtual image in the environment”</p> <p>’179 Pat., cl. 14; ’184 Pat., cl. 14.</p>	<p>customary meaning, but if the Court requires identification of function and structure, as provided in Plaintiff’s claim construction and sur-reply briefs:</p> <p>Structure: a digital signal processor (DSP), which is in communication with a sound localization system, digital-to-audio converter (DAC), decompressor/decoder, and hardware and/or software to process and localize sound to a SLP.</p> <p>Function Identified: processing a sound with the HRTFs to generate binaural sound</p>	<p>Function: “processing ... sound with the HRTFs to generate binaural sound that externally localizes to the user at the virtual image in the environment” / “processing ... sound with the HRTFs to generate binaural sound that externally localizes in empty space from the virtual image in the environment”</p> <p>Structure: Inadequate structure for performance of the claimed function and thus this term is indefinite.</p>	
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Dated: June 27, 2023

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CERTIFICATE OF SERVICE

I hereby certify that, on June 27, 2023, all counsel of record who have appeared in this case are being served with a copy of the foregoing via the Court's CM/ECF system.

/s/ Erick S. Robinson
Erick S. Robinson